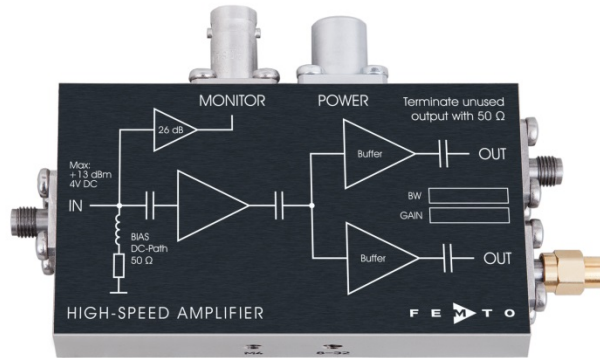
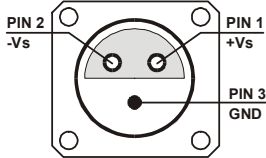


2 GHz High-Speed Amplifier



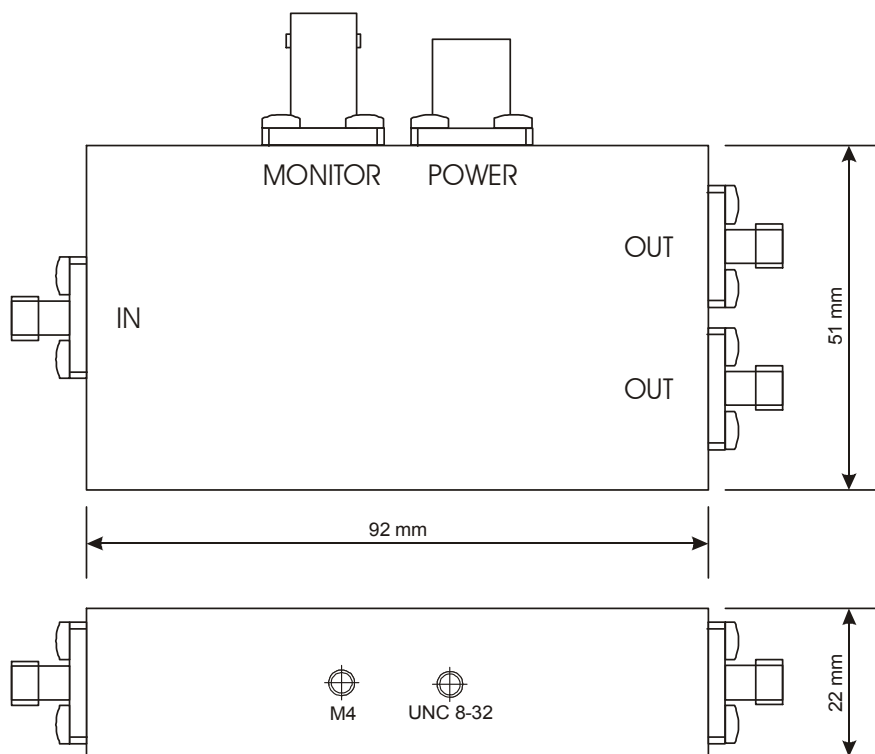
<p>Features</p>	<ul style="list-style-type: none"> • Bandwidth 10 kHz ... 2 GHz • Rise Time 175 ps • Gain 20 dB (500 V/A) • Input VSWR 1 : 1.15 • Integrated Bias Circuit • Monitor Output • Two identical Signal Outputs 	
<p>Applications</p>	<ul style="list-style-type: none"> • Preamplifier for ultra-fast Detectors (Microchannel-Plates, Photomultipliers, Avalanche-Photodiodes, PIN-Photodiodes etc.) • Oscilloscope and Transient-Recorder Preamplifier • Time-Resolved Pulse and Transient Measurements 	
<p>Block Diagram</p>		
<p>Specifications</p>	<p>Test Conditions</p> <p>Gain</p> <p>Gain Accuracy</p> <p>Gain Flatness</p> <p>Frequency Response</p> <p>Time Response</p> <p>Input</p>	<p>$V_s = \pm 15 \text{ V}$, $T_a = 25^\circ\text{C}$, System Impedance = 50Ω</p> <p>20 dB (500 V/A)</p> <p>$\pm 1 \text{ dB}$</p> <p>$\pm 0.2 \text{ dB}$</p> <p>Lower Cut-Off Frequency 10 kHz</p> <p>Upper Cut-Off Frequency 2 GHz</p> <p>Rise / Fall Time (10% - 90%) 175 ps</p> <p>DC Input Impedance 50Ω</p> <p>RF Input Impedance 50Ω</p> <p>50Ω Noise Figure 5.2 dB (@ $f < 1 \text{ GHz}$)</p> <p>Equivalent Input Voltage Noise 680 pV/$\sqrt{\text{Hz}}$ (@ $f < 1 \text{ GHz}$)</p> <p>Equivalent Input Current Noise 13.6 pA/$\sqrt{\text{Hz}}$ (@ $f < 1 \text{ GHz}$)</p> <p>Input VSWR 1 : 1.15 (@ $f < 1.5 \text{ GHz}$)</p> <p>Maximum Input VSWR 1 : 1.35 (@ $f < 3 \text{ GHz}$)</p>

2 GHz High-Speed Amplifier

Specifications (continued)	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; vertical-align: top;">Output</td> <td>Two identical Signal Outputs:</td> <td></td> </tr> <tr> <td></td> <td>Output Impedance</td> <td>50 Ω</td> </tr> <tr> <td></td> <td>Maximum Output VSWR</td> <td>1 : 2.5 (@ f < 3 GHz)</td> </tr> <tr> <td></td> <td>Output Power P_{1dB}</td> <td>+ 12.5 dBm (@ f < 1 GHz)</td> </tr> <tr> <td></td> <td>Output Peak-Peak Voltage</td> <td>2.5 Vpp (@ f < 500 MHz, for linear Amplification)</td> </tr> <tr> <td></td> <td>Isolation between Outputs</td> <td>15 dB (@ f < 3 GHz)</td> </tr> <tr> <td style="vertical-align: top;">Monitor Amplifier</td> <td>Gain</td> <td>26 dB (1 kV/A)</td> </tr> <tr> <td></td> <td>Lower Cut-Off Frequency</td> <td>DC</td> </tr> <tr> <td></td> <td>Upper Cut-Off Frequency</td> <td>100 kHz</td> </tr> <tr> <td></td> <td>Output Voltage</td> <td>± 10 V (@ 10kΩ load)</td> </tr> <tr> <td style="vertical-align: top;">Power Supply</td> <td>Supply Voltage</td> <td>± 15 V</td> </tr> <tr> <td></td> <td>Supply Current</td> <td>+ 160 / -10 mA</td> </tr> <tr> <td style="vertical-align: top;">Case</td> <td>Weight</td> <td>180 gr. (0.41 lbs)</td> </tr> <tr> <td></td> <td>Material</td> <td>AlMg4.5Mn, nickel-plated</td> </tr> <tr> <td style="vertical-align: top;">Temperature Range</td> <td>Storage Temperature</td> <td>- 40 ... + 100 °C</td> </tr> <tr> <td></td> <td>Operating Ambient Temperature</td> <td>0 ... + 60 °C</td> </tr> <tr> <td></td> <td>Operating Case Temperature</td> <td>37 °C (@ Ta = 25 °C)</td> </tr> </table>	Output	Two identical Signal Outputs:			Output Impedance	50 Ω		Maximum Output VSWR	1 : 2.5 (@ f < 3 GHz)		Output Power P _{1dB}	+ 12.5 dBm (@ f < 1 GHz)		Output Peak-Peak Voltage	2.5 Vpp (@ f < 500 MHz, for linear Amplification)		Isolation between Outputs	15 dB (@ f < 3 GHz)	Monitor Amplifier	Gain	26 dB (1 kV/A)		Lower Cut-Off Frequency	DC		Upper Cut-Off Frequency	100 kHz		Output Voltage	± 10 V (@ 10kΩ load)	Power Supply	Supply Voltage	± 15 V		Supply Current	+ 160 / -10 mA	Case	Weight	180 gr. (0.41 lbs)		Material	AlMg4.5Mn, nickel-plated	Temperature Range	Storage Temperature	- 40 ... + 100 °C		Operating Ambient Temperature	0 ... + 60 °C		Operating Case Temperature	37 °C (@ Ta = 25 °C)
Output	Two identical Signal Outputs:																																																			
	Output Impedance	50 Ω																																																		
	Maximum Output VSWR	1 : 2.5 (@ f < 3 GHz)																																																		
	Output Power P _{1dB}	+ 12.5 dBm (@ f < 1 GHz)																																																		
	Output Peak-Peak Voltage	2.5 Vpp (@ f < 500 MHz, for linear Amplification)																																																		
	Isolation between Outputs	15 dB (@ f < 3 GHz)																																																		
Monitor Amplifier	Gain	26 dB (1 kV/A)																																																		
	Lower Cut-Off Frequency	DC																																																		
	Upper Cut-Off Frequency	100 kHz																																																		
	Output Voltage	± 10 V (@ 10kΩ load)																																																		
Power Supply	Supply Voltage	± 15 V																																																		
	Supply Current	+ 160 / -10 mA																																																		
Case	Weight	180 gr. (0.41 lbs)																																																		
	Material	AlMg4.5Mn, nickel-plated																																																		
Temperature Range	Storage Temperature	- 40 ... + 100 °C																																																		
	Operating Ambient Temperature	0 ... + 60 °C																																																		
	Operating Case Temperature	37 °C (@ Ta = 25 °C)																																																		
Absolute Maximum Ratings	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Power Supply Voltage</td> <td>± 20 V</td> </tr> <tr> <td>DC and LF Input Voltage</td> <td>± 4 V</td> </tr> <tr> <td>RF Input Power</td> <td>+ 13 dBm</td> </tr> </table>	Power Supply Voltage	± 20 V	DC and LF Input Voltage	± 4 V	RF Input Power	+ 13 dBm																																													
Power Supply Voltage	± 20 V																																																			
DC and LF Input Voltage	± 4 V																																																			
RF Input Power	+ 13 dBm																																																			
Connectors	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Input</td> <td>SMA</td> </tr> <tr> <td>Signal Outputs</td> <td>SMA</td> </tr> <tr> <td>Monitor Output</td> <td>BNC</td> </tr> <tr> <td>Power Supply</td> <td>LEMO Series 1S, 3-pin fixed Socket</td> </tr> <tr> <td></td> <td>Pin 1: + 15 V</td> </tr> <tr> <td></td> <td>Pin 2: - 15 V</td> </tr> <tr> <td></td> <td>Pin 3: GND</td> </tr> </table> <div style="text-align: center; margin-top: 10px;">  </div>	Input	SMA	Signal Outputs	SMA	Monitor Output	BNC	Power Supply	LEMO Series 1S, 3-pin fixed Socket		Pin 1: + 15 V		Pin 2: - 15 V		Pin 3: GND																																					
Input	SMA																																																			
Signal Outputs	SMA																																																			
Monitor Output	BNC																																																			
Power Supply	LEMO Series 1S, 3-pin fixed Socket																																																			
	Pin 1: + 15 V																																																			
	Pin 2: - 15 V																																																			
	Pin 3: GND																																																			

2 GHz High-Speed Amplifier

Dimensions



DZ01-0611-10

FEMTO Messtechnik GmbH
 Klosterstr. 64
 10179 Berlin · Germany
 Phone: +49 30 280 4711-0
 Fax: +49 30 280 4711-11
 Email: info@femto.de
 www.femto.de

Specifications are subject to change without notice. Information provided herein is believed to be accurate and reliable. However, no responsibility is assumed by FEMTO Messtechnik GmbH for its use, nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of FEMTO Messtechnik GmbH. Product names mentioned may also be trademarks used here for identification purposes only.

© by FEMTO Messtechnik GmbH · Printed in Germany